DATE OF REPORT: 12TH JANUARY, 2016

Commercially sensitive information has been removed from this report

TEST REPORT NO. OCT15201.1

AIR EMISSIONS MONITORING OF RELEASE POINTS 4A & 4B AT ADELAIDE BRIGHTON CEMENT LTD IN BIRKENHEAD

DATE OF TESTING: 20TH – 21ST OCTOBER, 2015

ACCREDITATION:

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INTRODUCTION

Airlabs Environmental Pty Ltd was commissioned by Adelaide Brighton Cement Ltd to conduct air emissions testing of the Dry Process Kiln 4 Main Stack (Release Point 4A) and the Precalciner Plant Stack (Release Point 4B) at their Birkenhead Plant. The following parameters were monitored on each stack:

- Temperature, Gas Velocity and Volume Flow Rate
- Moisture Concentration
- Concentration of Oxygen and Carbon Dioxide
- Dry Molecular Weight and Dry Gas Density
- Concentration and Mass Emission Rate of:
  - Total Solid Particulates
  - PM_{10} (Particulate matter with a nominal aerodynamic diameter ≤10 µm)
  - $PM_{2.5}$ (Particulate matter with a nominal aerodynamic diameter ≤2.5 µm)
  - Sulphur Dioxide
  - Carbon Monoxide
  - Nitrogen Oxides (as NO_2)
  - Hydrogen Chloride [a]
  - Chlorine
  - Fluoride [b]
  - Total Volatile Organic Compounds (VOCs)
  - Benzene
  - Multi-Metals [c]
  - Chromium VI and compounds
  - Polycyclic Aromatic Hydrocarbons (PAHs as BaP).

Combustion gases (O_2, CO, CO_2, SO_2 and NO_x) were monitored semi-continuously and the average values reported. Average normalised flow rates were used to calculate the mass emission rates. The Precalciner Plant Stack was tested on 20th – 21st October 2015, and the Dry Process Kiln 4 Main Stack on 21st October 2015.

QUALITY STATEMENT

Airlabs Environmental is committed to providing the highest quality data to all our clients, as reflected in our ISO 17025 (NATA) accreditation. This requires strict adherence to and continuous improvement of all our processes and test work. Our goal is to exceed the QA/QC requirements as set by our clients and appropriate governmental entities and to insure that all data generated is scientifically valid and defensible.

Airlabs Environmental is NATA accredited for all sampling undertaken for this project. Analysis was undertaken by the National Measurement Institute (NATA Accreditation No. 198) and Airlabs Environmental in accordance with our terms of accreditation.

[a] Chlorides expressed as HCl.

[b] Fluorides expressed as HF.

[c] Antimony and compounds, Arsenic and compounds, Barium (soluble compounds), Beryllium and compounds, Cadmium and compounds Chromium (III) and compounds, Copper oxide fume (as CuO), Iron oxide fume (as Fe_2O_3), Lead and compounds, Magnesium oxide fume (as MgO), Manganese and compounds, Mercury - organic, Mercury - inorganic, Nickel and compounds, Zinc oxide fume (as ZnO).

TEST METHODS

All sampling was undertaken by Airlabs Environmental. Airlabs Environmental is NATA accredited for all sampling undertaken for this project (NATA Accredited Laboratory No. 15463). Analysis was undertaken by Airlabs Environmental and the National Measurement Institute (NMI, NATA Accreditation No. 198) in accordance with our terms of accreditation. Specific details of the test methods used are available upon request.

Table 1: Summary of Test Methods

Test Parameter	Test Method	Method Detection Limit	Estimated Measurement Uncertainty	NATA Accredited	
				Sampling	Analysis
Sample plane criteria	AS 4323.1	NA	NA	✓	NA
Gas velocity	US EPA Method 2	3 m/s	± 10%	✓	NA
Temperature	US EPA Method 2	273K (0°C)	± 1%	✓	NA
Moisture content	US EPA Method 4	0.2%	± 5%	✓	✓
Oxygen & carbon dioxide	US EPA Method 3A	0.1%	± 2%	✓	✓
Dry molecular weight & gas density	US EPA Method 3	NA	± 5%	✓	✓
Total solid particulates	AS 4323.2	1 mg/m³	± 15%	✓	✓
PM_{10} & $PM_{2.5}$	US EPA Method 201A	1 mg/m³	± 15%	✓	✓
Sulfur dioxide	US EPA Method 6C	3 mg/m³	± 5%	✓	✓
Carbon monoxide	US EPA Method 10	1 mg/m³	± 5%	✓	✓
Nitrogen oxides (as NO_2)	US EPA Method 7E	2 mg/m³	± 5%	✓	✓
Chlorine, Chloride (as HCl) & Fluoride (as HF)	US EPA Method 26A	0.1 mg/m³	± 17%	✓	✓ [1]
Total VOCs	US EPA Method 25A	0.1 mg/m³	± 10%	✓	✓
Benzene	US EPA Method 18 / NSW EPA TM-34	0.05 mg/m³	± 17%	✓	✓
Multi-Metals	US EPA Method 29	0.05 mg/m³	± 17%	✓	✓ [2]
Chromium VI	US EPA Method 0061	0.0001 mg/m³	± 17%	✓	✓ [3]
PAHs (as BαP)	US EPA SW-846 Method 0010 & CARB 429	0.00001 mg/m³	± 20%	✓	✓ [4]

1. Chloride and fluoride analyses were performed by NMI, with results included in their Report No. RN1092951.
2. Heavy metal analysis was performed on the various sample components by NMI, with results included in their Report No. RN1092951.
3. Hexavalent chromium analysis was performed by NMI, with results included in their Report No. RN1092951.
4. PAH analysis was performed by NMI, with results included in their Analytical Certificate No. ORG15_145.

DEFINITIONS

'SA EPA'	South Australian Environment Protection Authority.
'US EPA'	United States Environmental Protection Agency.
'NSW EPA'	New South Wales Environment Protection Authority.
'NMI'	National Measurement Institute (Australian Government), North Ryde, NSW.
'tph'	Tonnes per hour.
'K'	Absolute temperature in Kelvin (°C + 273).
'mB'	Pressure in millibars.
'lpm'	Gas flow rate in litres per minute.
'STP'	Standard temperature and pressure (273K and 101.3 kPa).
'm^3'	Actual gas volume in cubic metres at stack conditions.
'Nm^3'	Gas volume in dry cubic metres at STP.
'<'	Less than. The value stated is the limit of detection.
'g'	Grams.
'mg'	Milligrams (10^{-3} grams).
'µg'	Micrograms (10^{-6} grams).
'min'	Minute.
'LOD'	Limit of detection.
'FIA'	Flame ionisation analyser.
'VOC'	Volatile organic compound. A VOC is defined as any chemical compound based on carbon chains or rings with a vapour pressure greater than 2 mm of mercury (0.27 kPa) at 25°C. These compounds may contain hydrogen, oxygen, nitrogen and other elements, but specifically excluded are methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonate salts.
'PAHs'	Polycyclic aromatic hydrocarbons.
'CARB'	California Air Resources Board.
'OEHHA'	Office of Environmental Health Hazard Assessment (US).
'BaP-PEF'	Benzo(a)pyrene Potency Equivalency Factor.
'$BAP\text{-}TEQ_{PAH}$'	Benzo(a)pyrene Toxic Equivalents.
'N/A'	Not applicable.
'PM_{10}'	Particulate matter with a nominal aerodynamic diameter ≤10µm.
'$PM_{2.5}$'	Particulate matter with a nominal aerodynamic diameter ≤2.5µm.

SUITABILITY OF SAMPLING PLANE

The criteria for sampling planes as specified in AS4323.1-1995 'Stationary Source Emissions, Method 1: Selection of Sampling Provisions' states that, in the absence of cyclonic flow activity, ideal sampling plane conditions are found to exist at the positions given in Table 2 below:

Table 2: Criteria for the Selection of Sampling Planes

Type of flow disturbance	Minimum distance upstream from disturbance, diameters (*D*)	Minimum distance downstream from disturbance, diameters (*D*)
Bend, connection, junction, direction change	>2D	>6D
Louvre, butterfly damper (partially closed or closed)	>3D	>6D
Axial fan	>3D	>8D (see Note)
Centrifugal fan	>3D	>6D

NOTE: The plane should be selected as far as practicable from a fan. Flow straighteners may be required to ensure the position chosen meets the check criteria listed in Items (a) to (f) below.

Section 4.1 of AS 4323.1-1995 (Ideal Sampling Positions) states that the location of the sampling plane shall be such that it meets the following criteria:

(a) The gas flow is basically in the same direction at all points along each sampling traverse.

(b) The gas velocity at all sampling points is greater than 3 m/s.

(c) The gas flow profile at the sampling plane shall be steady, evenly distributed and not have a cyclonic component which exceeds an angle of 15° to the duct axis, when measured near the periphery of a circular sampling plane.

(d) The temperature difference between adjacent points of the survey along each sampling traverse is less than 10% of the absolute temperature, and the temperature at any point differs by less than 10% from the mean.

(e) The ratio of the highest to lowest pitot pressure difference shall not exceed 9:1 and the ratio of highest to lowest gas velocities shall not exceed 3:1. For isokinetic testing with the use of impingers, the gas velocity ratio across the sampling plane should not exceed 1.6:1.

(f) The gas temperature at the sampling plane should preferably be above the dewpoint.

The gas characteristics determined for the Dry Process Kiln 4 Main Stack (Release Point 4A) and the Precalciner Plant Stack (Release Point 4B) satisfied the requirements of AS 4323.1-1995 Section 4.1 (a) - (f), and as such the sampling location is considered to be ideal. The sampling plane details and required number of sampling points are given in Tables 3 and 4 below:

SUITABILITY OF SAMPLING PLANE Continued

Table 3: Sampling Plane Details for the Kiln 4 Main Stack

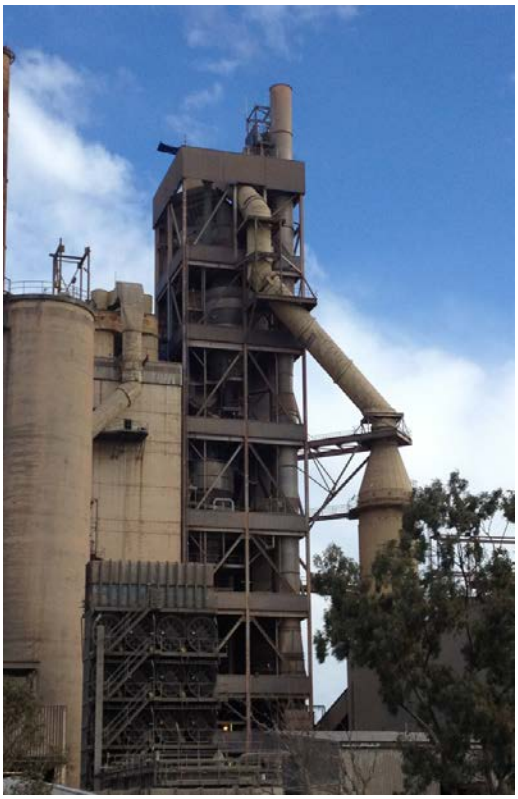
Parameter	
Stack Shape	Circular
Actual Stack Internal Diameter (m)	3.23
Stack Exit Diameter (m)	3.23
Direction of Discharge to Air	Vertical
Type of Disturbance, Upstream	Centrifugal Fan
Distance from Upstream Disturbance	> 6 D
Type of Disturbance, Downstream	Stack Exit
Distance to Downstream Disturbance	> 2 D
Compliance with AS4323.1, Ideal Conditions	Yes
Stack Height Above Ground Level (m)	75.5
Standard No. of Sampling Points per Traverse	12
Number of Traverses	2
Correction Factor	N/A
Corrected No. of Sampling Points per Traverse	N/A
Total No. of Sampling Points	24
Stratified	No
Cyclonic	No (< 15°)
Velocity Difference	1.6:1 (< 1.6:1)
Absolute Temperature Difference (K)	< 10%
Minimum Velocity at any Sample Point (m/s)	> 3

Figure 1: Kiln 4 Main Stack (RP 4A)

Table 4: Sampling Plane Details for the Precalciner Plant Stack

Parameter	
Stack Shape	Circular
Actual Stack Internal Diameter (m)	3.00
Stack Exit Diameter (m)	3.00
Direction of Discharge to Air	Vertical
Type of Disturbance, Upstream	Centrifugal Fan
Distance from Upstream Disturbance	> 6 D
Type of Disturbance, Downstream	Stack Exit
Distance to Downstream Disturbance	> 2 D
Compliance with AS4323.1, Ideal Conditions	Yes
Stack Height Above Ground Level (m)	96
Standard No. of Sampling Points per Traverse	12
Number of Traverses	2
Correction Factor	N/A
Corrected No. of Sampling Points per Traverse	N/A
Total No. of Sampling Points	24
Stratified	No
Cyclonic	No (< 15°)
Velocity Difference	1.5:1 (< 1.6:1)
Absolute Temperature Difference (K)	< 10%
Minimum Velocity at any Sample Point (m/s)	> 3

Figure 2: Precalciner Plant Stack (RP 4B)



RESULTS – RELEASE POINT 4A

Company	Adelaide Brighton Cement
Site	Elder Rd, Birkenhead
Source Tested	Dry Process Kiln 4 Main Stack - Release Point 4A
Date of Tests	21st October 2015
Sampling Period	05:10 – 18:29
Testing Officers	C. Clunies-Ross & I. Brash
Sampling Position	Four 4" BSP sample ports in circular stack

Table 5: Release Point 4A - Sampling Conditions

Sampling Conditions	***Start***	***Finish***	***Average***
Stack diameter at sampling plane (m)	3.23	3.23	3.23
Average stack gas temperature (K)	374 (101°C)	376 (103°C)	375 (102°C)
Average barometric pressure (hPa)	1016	1014	1015
Average static pressure (mB)	-0.90	-1.0	-0.90
Average velocity at sampling plane (m/s)	19.2	19.3	19.3
Average velocity at sampling plane expressed at STP (m/s)	14.2	14.1	14.2
Actual gas flow rate (m^3/min)	9,450	9,490	9,470
Average moisture content (%v/v)	8.45	8.70	8.58
Gas flow rate at STP, dry (Nm^3/min)	6,400	6,390	6,390
Average carbon dioxide concentration, dry basis (%v/v)	6.30	6.58	6.44
Average oxygen concentration, dry basis (%v/v)	17.0	16.8	16.9
Dry molecular weight of stack gas (g/g mole)	29.69	29.72	29.71
Dry gas density of stack gas (kg/m^3)	1.325	1.327	1.326

RESULTS – RELEASE POINT 4A Continued

Table 6: Release Point 4A – Test Results for 21st October 2015

Parameter	Sampling Period	Concentration (mg/Nm³)	Emission Rate (g/min)
Total Solid Particulates	07:44 – 09:52 [d]	24	150
PM_{10} Particles		16	100
$PM_{2.5}$ Particles		4.9	31
Sulphur Dioxide	10:21 – 12:21	5.7 – 37 (Av. 19)	36 – 240 (Av. 120)
Carbon Monoxide		100 – 245 (Av. 159)	640 – 1,570 (Av. 1,020)
Oxides of Nitrogen (as NO_2) *Actual at STP* *At 7% O_2*		349 – 445 (Av. 398) 1,210 – 1,550 (Av. 1,380)	2,230 – 2,840 (Av. 2,540)
Hydrogen Chloride	05:10 – 07:14	4.2	27
Chlorine		2.5	16
Fluoride (as HF)		< 0.06	< 0.4
Total Volatile Organic Compounds (by FIA, as n-propane equivalent)	15:18 – 16:18	0.74	4.7
Benzene (by activated carbon adsorption and GC/MS analysis)		0.085	0.54
Total Multi-Metals [e]	10:25 – 12:31	0.78	5.0
Chromium VI and Compounds	13:02 – 15:07	< 0.0002	< 0.001
Polycyclic Aromatic Hydrocarbons *Total BaP-TEQ_{PAH}* [f]	16:23 – 18:29	0.0000071	0.000045

[d] Testing for Total Solid Particles and $PM_{10}/PM_{2.5}$ Particles was conducted simultaneously through different ports.
[e] Individual metals and their compounds are given in Table 7.
[f] Individual BaP-TEQ_{PAH} contributions are given in Table 8, and the total BaP-TEQ_{PAH} in Table 10. This result includes half LOD values.

RESULTS – RELEASE POINT 4A Continued

Table 7: Release Point 4A – Individual Metals and their Compounds

Metal	**Concentration (mg/Nm³)**	**Emission Rate (g/min)**
Antimony and its compounds	< 0.0001	< 0.0006
Arsenic and its compounds	0.00014	0.00089
Barium (soluble compounds)	0.0015	0.0096
Beryllium and its compounds	< 0.0001	< 0.0006
Cadmium and its compounds	0.000049	0.00031
Chromium (III) and its compounds	0.0018	0.012
Copper oxide fume (as CuO)	0.035	0.22
Iron oxide fume (as Fe_2O_3)	0.44	2.8
Lead and its compounds	0.0016	0.010
Magnesium oxide fume (as MgO)	0.23	1.5
Manganese and its compounds	0.0072	0.046
Mercury and its compounds (as Hg) *Organic:* *Inorganic:* *Total:*	 < 0.00007 0.00024 0.00024	 < 0.0004 0.0015 0.0015
Nickel and its compounds	0.0013	0.0083
Zinc oxide fume (as ZnO)	0.065	0.42
TOTAL METALS *Excluding LOD values* *Including half LOD values*	 **0.78** **0.78**	 **5.0** **5.0**

RESULTS – RELEASE POINT 4A Continued

Table 8: Release Point 4A – Individual USEPA Priority Pollutant PAHs

Individual USEPA Priority Pollutant PAHs	Concentration of PAHs (µg/Nm³)	BaP-PEF value	BaP-TEQ$_{PAH}$ Contribution	Emission Rate of PAHs (mg/min)
Naphthalene	7.8	0.0	0.0	50
2-Methylnaphthalene	1.0	0.0	0.0	6.5
Acenaphthylene	0.11	0.0	0.0	0.68
Acenaphthene	0.012	0.0	0.0	0.078
Fluorene	0.016	0.0	0.0	0.10
Phenanthrene	0.063	0.0	0.0	0.40
Anthracene	< 0.0078	0.0	0.0	< 0.050
Fluoranthene	0.014	0.0	0.0	0.093
Pyrene	< 0.0078	0.0	0.0	< 0.050
Benz(a)anthracene	< 0.0078	0.1	0.00039	< 0.050
Chrysene	< 0.0078	0.01	0.000039	< 0.050
Benzo(b)fluoranthene	< 0.0078	0.1	0.00039	< 0.050
Benzo(k)fluoranthene	< 0.0078	0.1	0.00039	< 0.050
Benzo(e)pyrene	< 0.0078	0.0	0.0	< 0.050
Benzo(a)pyrene	< 0.0078	1.0	0.0039	< 0.050
Perylene	< 0.0078	0.0	0.0	< 0.050
Indeno(123-cd)pyrene	< 0.0078	0.1	0.00039	< 0.050
Dibenz(ah)anthracene	< 0.0078	0.4	0.0016	< 0.050
Benzo(ghi)perylene	< 0.0078	0.0	0.0	< 0.050

Table 9: Release Point 4A – Total USEPA Priority Pollutant PAHs

Total USEPA Priority Pollutant PAHs	Concentration (µg/Nm³)	Emission Rate (mg/min)
Excluding LOD values	9.0	58
Including half LOD values	9.1	58

Table 10: Release Point 4A – Total PAH Toxic Equivalents (BaP-TEQ$_{PAH}$)

Total PAH Toxic Equivalents (BaP-TEQ$_{PAH}$)[g]	Concentration (µg/Nm³)	Emission Rate (mg/min)
Excluding LOD values	0.0	0.0
Including half LOD values	0.0071	0.045

[g] Calculated using benzo(α)pyrene potency equivalency factors (BaP-PEF values).

RESULTS – RELEASE POINT 4B

Company	Adelaide Brighton Cement
Site	Elder Rd, Birkenhead
Source Tested	Precalciner Plant Stack - Release Point 4B
Date of Tests	20th – 21st October 2015
Sampling Period	12:35 (20/10) – 00:56 (21/10)
Testing Officers	C. Clunies-Ross & I. Brash
Sampling Position	Four 4" BSP sample ports in circular stack

Table 11: Release Point 4B - Sampling Conditions

Sampling Conditions	***Start***	***Finish***	***Average***
Stack diameter at sampling plane (m)	3.00	3.00	3.00
Average stack gas temperature (K)	376 (103°C)	380 (107°C)	378 (105°C)
Average barometric pressure (hPa)	998.2	1005.8	1002.0
Static pressure (mB)	-1.5	-1.9	-1.7
Average velocity at sampling plane (m/s)	17.6	18.7	18.2
Average velocity at sampling plane expressed at STP (m/s)	12.8	13.4	13.1
Actual gas flow rate (m^3/min)	7,460	7,930	7,700
Average moisture content (%v/v)	17.2	17.8	17.5
Gas flow rate at STP, dry (Nm^3/min)	4,490	4,680	4,590
Average carbon dioxide concentration, dry basis (%v/v)	19.5	18.7	19.1
Average oxygen concentration (%v/v), dry basis	11.2	11.6	11.4
Dry molecular weight of stack gas (g/g mole)	31.57	31.46	31.52
Dry gas density of stack gas (kg/m^3)	1.409	1.404	1.407

RESULTS – RELEASE POINT 4B Continued

Table 12: Release Point 4B – Test Results for 20th – 21st October 2015

Parameter	Sampling Period	Concentration (mg/Nm³)	Emission Rate (g/min)
Total Solid Particulates	12:35 – 14:41 [h] (20/10/15)	13	60
PM_{10} Particles		8.5	39
$PM_{2.5}$ Particles		4.0	18
Sulphur Dioxide	15:10 – 17:10 (20/10/15)	< 3	< 10
Carbon Monoxide		250 – 356 (Av. 319)	1,150 – 1,630 (Av. 1,460)
Oxides of Nitrogen (as NO_2) *Actual at STP* *At 7% O_2*		480 - 541 (Av. 508) 702 – 792 (Av. 744)	2,200 – 2,480 (Av. 2,330)
Hydrogen Chloride	17:48 – 19:52 (20/10/15)	2.7	12
Chlorine		2.2	10
Fluoride (as HF)		< 0.06	< 0.3
Total Volatile Organic Compounds (by FIA, as n-propane equivalent)	19:01 – 20:01 (20/10/15)	0.91	4.2
Benzene (by activated carbon adsorption and GC/MS analysis)		0.13	0.60
Total Multi-Metals [i]	20:24 – 22:29 (20/10/15)	0.62	2.8
Chromium VI and Compounds	22:52 – 00:56 (20-21/10/15)	< 0.0002	< 0.0009
Polycyclic Aromatic Hydrocarbons *Total BaP-TEQ_{PAH}* [j]	15:16 – 17:21 (20/10/15)	0.0000072	0.000033

[h] Testing for Total Solid Particles and $PM_{10}/PM_{2.5}$ Particles was conducted simultaneously through different ports.
[i] Individual metals and their compounds are given in Table 13.
[j] Individual BaP-TEQ_{PAH} contributions are given in Table 14, and the total BaP-TEQ_{PAH} in Table 16. This result includes half LOD values.

RESULTS – RELEASE POINT 4B Continued

Table 13: Release Point 4B – Individual Metals and their Compounds

Metal	**Concentration (mg/Nm³)**	**Emission Rate (g/min)**
Antimony and its compounds	0.000080	0.00037
Arsenic and its compounds	0.00021	0.00096
Barium (soluble compounds)	0.0017	0.0078
Beryllium and its compounds	< 0.0002	< 0.0009
Cadmium and its compounds	0.000065	0.00030
Chromium (III) and its compounds	0.0013	0.0060
Copper oxide fume (as CuO)	0.0044	0.020
Iron oxide fume (as Fe_2O_3)	0.35	1.6
Lead and its compounds	0.00085	0.0039
Magnesium oxide fume (as MgO)	0.23	1.1
Manganese and its compounds	0.0091	0.042
Mercury and its compounds (as Hg) *Organic:* *Inorganic:* *Total:*	 0.0000054 0.00045 0.00046	 0.000025 0.0021 0.0021
Nickel and its compounds	0.00065	0.0030
Zinc oxide fume (as ZnO)	0.019	0.087
TOTAL METALS *Excluding LOD values* *Including half LOD values*	 **0.62** **0.62**	 **2.8** **2.8**

RESULTS – RELEASE POINT 4B Continued

Table 14: Release Point 4B – Individual USEPA Priority Pollutant PAHs

Individual USEPA Priority Pollutant PAHs	Concentration of PAHs (µg/Nm³)	BaP-PEF value	BaP-TEQ Contribution	Emission Rate of PAHs (mg/min)
Naphthalene	11	0.0	0.0	50
2-Methylnaphthalene	1.0	0.0	0.0	4.6
Acenaphthylene	0.11	0.0	0.0	0.50
Acenaphthene	0.011	0.0	0.0	0.050
Fluorene	0.021	0.0	0.0	0.096
Phenanthrene	0.068	0.0	0.0	0.31
Anthracene	< 0.0080	0.0	0.0	< 0.037
Fluoranthene	0.010	0.0	0.0	0.046
Pyrene	< 0.0080	0.0	0.0	< 0.037
Benz(a)anthracene	< 0.0080	0.1	0.00040	< 0.037
Chrysene	< 0.0080	0.01	0.000040	< 0.037
Benzo(b)fluoranthene	< 0.0080	0.1	0.00040	< 0.037
Benzo(k)fluoranthene	< 0.0080	0.1	0.00040	< 0.037
Benzo(e)pyrene	< 0.0080	0.0	0.0	< 0.037
Benzo(a)pyrene	< 0.0080	1.0	0.0040	< 0.037
Perylene	< 0.0080	0.0	0.0	< 0.037
Indeno(123-cd)pyrene	< 0.0080	0.1	0.00040	< 0.037
Dibenz(ah)anthracene	< 0.0080	0.4	0.0016	< 0.037
Benzo(ghi)perylene	< 0.0080	0.0	0.0	< 0.037

Table 15: Release Point 4B – Total USEPA Priority Pollutant PAHs

Total USEPA Priority Pollutant PAHs	Concentration (µg/Nm³)	Emission Rate (mg/min)
Excluding LOD values	12	56
Including half LOD values	12	56

Table 16: Release Point 4B – Total PAH Toxic Equivalents ($BaP\text{-}TEQ_{PAH}$)

Total PAH Toxic Equivalents ($BaP\text{-}TEQ_{PAH}$) [k]	Concentration (µg/Nm³)	Emission Rate (mg/min)
Excluding LOD values	0.0	0.0
Including half LOD values	0.0072	0.033

[k] Calculated using benzo(α)pyrene potency equivalency factors (BaP-PEF values).